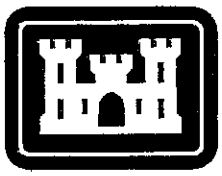

US Army Corps
of Engineers
Kansas City District

KANSAS CITY DISTRICT
CORPS OF ENGINEERS
and the
BRUNSWICK LEVEE DISTRICT

Public Law 84-99 of the Flood Control Act of 1944
Levee Rehabilitation – NEPA Review, Environmental Assessment & DRAFT Finding of No Significant Impact

BRUNSWICK LEVEE DISTRICT (ITEM 60), NON-FEDERAL, EMERGENCY LEVEE REHABILITATION PROJECT

Missouri River
Carroll County, Missouri

December 2007

DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

DRAFT
Finding of No Significant Impact

Brunswick Levee District (Item 60)
Levee Rehabilitation Project
Carroll County, Missouri

Project Summary

The U.S. Army Corps of Engineers, Kansas City District (CENWK), in cooperation with the project sponsor, Brunswick Levee District, proposes to construct the Brunswick Levee Districts Levee Rehabilitation Project, under the authority of Public Law 84-99 of the Flood Control Act of 1944. Three alternatives were considered: (1) In-place repairs; (2) Landward levee setback; and (3) No action. The Corps has identified Alternative 1 – In-place repairs as the recommended plan. The proposed project would involve the in-place repair of all intermittent crown, landside and river side erosion areas and the in-place repair of the levee breach, along with total re-seeding of landside and riversides slopes of levees damaged by the declared flood event of 6 May 2007. The proposed repairs are located in Carroll County, Missouri, near the town of Brunswick, along the left descending bank of the Missouri River from River Mile 255.3 to River Mile 250.0 and the right descending bank of the Grand River from River Mile 5.2 to River Mile 0.0.

Alternatives

Three alternatives were considered: (1) In-place repairs (**RECOMMENDED PLAN**); (2) Landward levee setbacks; and (3) No action.

Recommended Plan

The recommended repair action consist of in-place repair of all intermittent crown, landside and riverside erosion areas (sta. 0+00 to 1+80, 3+00 to 20+00, 80+00, 115+00 to 116+00, 175+00, 185+00 to 246+00, 249+00 to 266+30, 285+00 to 292+00, 352+00 to 362+00, 383+00 to 404+25, 447+00 to452+00 and 495+00); stone protection along the riverward "face" between station 311+00 to 319+00; and the in-place repair of levee breach (sta. 346+00 to 349+00); along with total re-seeding of both landside and riverside levee slopes (sta. 0+00 to 515+25).

Summary of Environmental Impacts

Flood risk management level achieved by the recommended plan would be the same as with Alternative 2 and the original pre-flood levees. The recommended plan would result in no

impacts to any Federally-listed threatened or endangered species or their habitat. The recommended plan would result in no impacts to any properties listed, proposed for listing, eligible for listing, or potentially eligible for listing in the National Register of Historic Places. Areas of the existing levee sections damaged by flooding would be temporarily disturbed by the proposed construction activity. The proposed project would result in the impact of wetland areas by the expansion of existing scour areas for fill. These impacts would meet the conditions of General Permit Number NWKGP-41. The adverse effects associated with the proposed project are long-term/minor associated with the loss of agricultural cropland (27 acres), and short term/minor associated with project construction. These minor adverse effects would be greatly offset by restoring the flood risk management capability, and its associated social and economic benefits of the existing levee system. Alternative 1–In-place repair meets the project purpose and need of rehabilitating the flood risk management capability, and its associated social and economic benefits of the existing levee system. Of the three (3) alternatives considered, Alternative 1 –In-place repairs is recommended because it has the highest cost/benefit ratio, and is consistent with protection of the nation's environment.

Mitigation Measures

The recommended plan will result in minor fill impacts to mitigatable resources as defined in USACE Planning regulations and under Section 404 of the Clean Water Act. These impacts are associated with minor excavation of borrow material around farmed wetland areas and scour holes. General Permit Number NWKGP-41 authorizes these actions.

A small fringe of timber, cottonwoods and willows, (< 9 inches breast diameter height) will be removed during project construction. The U.S. Fish and Wildlife Service has stated that natural plant succession should provide adequate re-vegetation of impacted area, so long as mast-producing trees are not affected. Therefore, no mitigation measures are warranted or proposed.

Public Availability

Prior to a decision on whether to prepare an Environmental Impact Statement, the proposed project was circulated to the public and resource agencies through a Notice of Availability (Notice) on the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI), dated December 18, 2007, with a thirty-day comment period ending on January 18, 2008. The Notice informed these individuals that the EA and Draft FONSI were available on the CENWK webpage for review or that they could request a hard copy of the EA and Draft FONSI in order to provide comment.

Levee rehabilitation projects completed by the Corps under authority of Public Law 84-99 generally do not require the preparation of an Environmental Impact Statement. These projects typically result in long-term social and economic benefits and adverse environmental effects are typically minor/long-term and minor/short-term construction related. Minor long-term impacts associated with these projects are typically well outweighed by the overall long-term social and economic benefits of these projects. As described above, the recommended plan is consistent with this assessment of typical levee rehabilitation projects completed by the Corps under authority of Public Law 84-99 of the Flood Control Act of 1944.

Conclusion

After evaluating the anticipated environmental, economic, and social effects of the proposed activity, it is my determination that construction of the proposed Brunswick Levee District Levee Rehabilitation Project does not constitute a major Federal action that would significantly affect the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date: _____

_____

Roger A. Wilson, Jr.
Colonel, Corps of Engineers
District Commander

DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

EXECUTIVE SUMMARY

The U.S. Army Corps of Engineers, Kansas City District (CENWK), in cooperation with the project sponsor, Brunswick Levee District, propose to construct the Brunswick Levee Districts Levee Rehabilitation Project, under the authority of Public Law 84-99 of the Flood Control Act of 1944. The proposed project would involve the re-seeding of landside and riversides slopes, repairs to breaches using earthen fill, repairs to intermittent levee crowns and erosion areas, and the replacement of lost sod as described below. Repairs are required as a result of the flood event declared on 6 May 2007.

The Brunswick levee consists of approximately 51,525 linear feet of earthen flood control works (FCW) on the left descending bank of the Missouri River between river mile 255.3 and 250.0 and the right descending bank of the Grand River between river mile 5.2 and 0.0 in Carroll County, Missouri. The FCW protects approximately 3,700 acres (3,652 acres in cropland), 3 machine sheds, 1 outbuilding, approximately 1.5 miles of Burlington Northern Santa Fe railroad embankment, Sinclair Pipeline rectifier and valve and a Kansas City Power & Light service line with meter. The recommended plan consist of in-place repair of all intermittent crown, landside and riverside erosion areas (sta. 0+00 to 1+80, 3+00 to 20+00, 80+00, 115+00 to 116+00, 175+00, 185+00 to 246+00, 249+00 to 266+30, 285+00 to 292+00, 352+00 to 362+00, 383+00 to 404+25, 447+00 to452+00 and 495+00); stone protection along the riverward "face" between station 311+00 to 319+00; and the in-place repair of levee breach (sta. 346+00 to 349+00); along with total re-seeding of both landside and riverside levee slopes (sta. 0+00 to 515+25). Borrow material would be obtained from enlargement of an existing 93/95 landward scour and shallow excavation of riverward agricultural lands. All designated borrow areas are positioned within previously "environmentally cleared" borrow locations assessed during the 1993 and 1995 repair actions.

As part of the NEPA review for the proposed project, CENWK circulated a Notice of Availability (Notice) of the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI), dated December 18, 2007, with a thirty-day comment period ending on January 18, 2008 to the public and resource agencies. The Notice was e-mailed to individuals/agencies/businesses listed on CENWK-Regulatory Branch's e-mail mailing list. The Notice informed these individuals that the EA and Draft FONSI were available on the CENWK webpage or that they could request the EA and Draft FONSI in writing, in order to provide comment. The following comments were received and evaluated from coordination of the Notice:

Additional information concerning this project may be obtained from Mr. Curtis R. Hoagland, Environmental Resources Specialist, PM-PR, Kansas City District - U.S. Army Corps of Engineers, by writing the above address, or by telephone at 816-389-3401.

NEPA REVIEW
ENVIRONMENTAL ASSESSMENT
&
DRAFT FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
BRUNSWICK LEVEE DISTRICT
LEVEE REHABILITATION PROJECT
CARROLL COUNTY, MISSOURI

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NEPA REVIEW
ENVIRONMENTAL ASSESSMENT
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FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
BRUNSWICK LEVEE DISTRICT
LEVEE REHABILITATION PROJECT
CARROLL COUNTY, MISSOURI

Section 1: INTRODUCTION

This Environmental Assessment provides information that was developed during the National Environmental Policy Act (NEPA) public interest review of the proposed Public Law 84-99 Brunswick Levee District Levee Rehabilitation Project.

Section 2: AUTHORITY

The Kansas City District – U.S. Army Corps of Engineers (CENWK), in cooperation with the project sponsor, the Brunswick Levee District, propose to construct Brunswick Levee District Levee Rehabilitation Project under the authority of Public Law 84-99 of the Flood Control Act of 1944.

Section 3: PROJECT LOCATION

The Brunswick Levee District is located in Carroll County, Missouri, near the town of Brunswick, and includes approximately 51,525 linear feet of earthen FCW along the left descending bank of the Missouri River from River Mile 255.3 to RM 250.0, and the Grand River along the right descending bank between river miles 5.2 and 0.00.

Section 4: EXISTING CONDITION

The declared flood event on 6 May 2007 caused the follow damages to the Brunswick Levee District's levees: One levee breach at station 246+00 to 249+00; landside slope erosion at stations 0+00 to 1+80, 115+00 to 116+00, 285+00 to 292+00, 352+00 to 362+00, 383+00 to 404+25 and 447+00 to 452+00; intermittent landside and riverside slope erosion at station 3+00 to 20+00; intermittent crown and landside slope erosion at stations 185+00 to 246+00 and 249+00 to 266+30; landside slope erosion (small holes in slope) at stations 80+00, 175+00 and 495+00.

Section 5: PURPOSE & NEED FOR ACTION

The project purpose and need is to rehabilitate the damaged levees and restore the associated social and economic benefits. The Brunswick Levee District received damages to sections of their levees during the 6 May 2007 declared flood event. Prior to the May 2007 event, the Brunswick Levee District levees provided an approximately seven-year level of flood risk

management. In their current damaged state, the Brunswick Levee District levees are estimated to provide an approximately two-year level of protection. The existing condition exposes all public and private infrastructure and agricultural croplands to a high level of risk from future flooding. Failure to restore the flood risk management capability of the levee system would keep area residents livelihood and social well-being in turmoil, subject to the continuous threat of flooding until a level of flood protection is restored. Failure to reconstruct the levees could adversely affect the tax base of the counties and municipal governments and special districts, such as school districts. In addition, loss of jobs and potential losses in agricultural production on lands previously protected by the levees would also be incurred.

Section 6: ALTERNATIVES CONSIDERED BUT NOT SELECTED

Two alternatives were considered but not selected. One build alternative (Alternative 2 – Landward Levee Setback at the Breach and In-Place Repairs of the Erosion Areas) and Alternative 3 – The No Action Alternative.

Alternative 2 include in-place repairs of slope erosion which includes: STATIONS 0+00 to 1+80, 3+00 to 20+00, 80+00, 115+00 to 116+00, 175+00, 185+00 to 246+00, 249+00 to 266+30, 285+00 to 292+00, 352+00 to 362+00, 383+00 to 404+25, 447+00 to 452+00 and 495+00; intermittent crown, landside and riverside erosion and complete re-seeding of landside and riverside slopes; along with a total re-seeding of the landside and riverside slopes from station 0+00 to 515+25. Cost of these repairs was estimated at $172,358.00 (minus E&D & S&A costs).

Alternative 2 also includes a landward levee setback from existing levee station 243+00 and tie back into levee station 254+60. Costs of this landward setback were estimated at $98,637.00 (minus E&D & S&A costs). An additional levee setback from levee station 310+35 and tying into levee station 319+50 with a cost of $73,610.00 (minus E&D & S&A costs).

Total cost for Alternative 2 is approximately $385,957.00 (includes E&D & S&A costs).

"No Action" Alternative

The "No Action" Alternative would involve no construction and the levee would remain in its damaged condition. The No Action Alternative would continue to expose public and private infrastructure and agricultural croplands to a high risk level of future flooding.

Section 7: RECOMMENDED ALTERNATIVES

The recommended repair alternative (Alternative 1) consists of in-place repairs of slope erosion at STATIONS 0+00 to 1+80, 3+00 to 20+00, 80+00, 115+00 to 116+00, 175+00, 185+00 to 246+00, 249+00 to 266+30, 285+00 to 292+00, 352+00 to 362+00, 383+00 to 404+25, 447+00 to 452+00 and 495+00; intermittent crown, landside and riverside erosion and complete re-seeding of landside and riverside slopes; along with a total re-seeding of the landside and riverside slopes from station 0+00 to 515+25. Cost of these repairs was estimated at $172,358.00 (minus E&D & S&A costs).

Alternative 1 would also include in-place repairs of the levee breach at STATION 246+00 TO 249+00. Cost of in-place repairs were estimated at $79,061.00 (minus E&D & S&A costs). In

addition stone protection would be required along the riverward "face" between station 311+00 to 319+00, with a cost estimate of $34,430 (minus E&D & S&A costs)

Total cost of all recommended repair actions is estimated at $320,151.00 (includes E&D & S&A costs).

Section 8: NATIONAL ENVIRONMENTAL POLICY ACT REVIEW

As part of the NEPA review for the proposed project, CENWK circulated a Notice of Availability (Notice) of the Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI), dated December 18, 2007, with a thirty-day comment period ending on January 8, 2008 to the public and resource agencies. The Notice was e-mailed to individuals/agencies/businesses listed on CENWK-Regulatory Branch's e-mail mailing list. The Notice informed these individuals that the EA and Draft FONSI were available on the CENWK webpage or that they could request the EA and Draft FONSI in writing, in order to provide comment. The following comments were received and evaluated from coordination of the Notice:

(Section pending comments)

Section 9: AFFECTED ENVIRONMEMENT:

A wide variety of resources along with the related environmental, economic and social effects were considered during the development and evaluation of project alternatives. These include: atmospheric quality; noise levels; water quality; water supply; soil control; fish and wildlife; vegetation; energy resources; wetlands; geological resources; agricultural activity; employment; tax base; public service; growth patterns; land use; recreation; archaeological and historical resources; flood control; esthetics; navigation; transportation; health and safety; community service; population density and other items identified through public and agency comments.

The project area primarily consists of agricultural row crop ground located on the Missouri River and Grand River floodplains between river miles 255.3 and 250.0 and river miles 5.2 and 0.0, respectively. Total land disturbed by all repair actions (including borrow locations), is approximately 35 acres or less. Approximately 77 acres of landside and riverside levee slopes will be re-seeded by "no-till" seeding methods. The Corps Kansas City District's Standard Operating Procedures for identification of potential borrow sites, which was developed in consultation with the resource agencies to avoid/and or minimize adverse environmental effects, would be implemented for this project if different or additional borrow sites are needed.

Section 10: ENVIRONMENTAL CONSEQUENCES:

Primary resources of concern identified during the evaluation included: noise levels, water quality, fish and wildlife, vegetation, wetlands, geologic resources, agricultural activity, archeological and historical resources, flood control, economics and aesthetics. Projects impacts to other resources were determined to be no effect.

Noise levels

The recommended plan, Alternative 1, would result in minor short term construction related noise impacts. These impacts are the result of the operation of heavy machinery during project

construction. These noise levels would be in addition, but similar to those produced by agricultural equipment which is routinely operated in the project area. No residences, businesses, churches, park areas or other areas sensitive to increased noise levels were identified in the project area. There is a remote chance that the noise from project construction could disturb the occasional boater on the nearby Missouri River or person(s) participating in outdoor recreation on the private land in the project area.

Alternative 2– Repairs resulting from implementation of the alternative plan would result in noise impacts similar to those described above.

The "No Action" Alternative would produce no increase in noise levels in the project area.

Water quality

The recommended plan, Alternative 1, would result in minor, temporary, construction related adverse impacts to water quality resulting from site runoff and increased turbidity. The minor impacts associated with the recommended plan would be avoided and/or minimized to the greatest extent possible by the implementation of Best Management Practices and measures required under the National Pollutant Discharge Elimination System (NPDES) permit. Best management practices would minimize the incidental fallback of material into the river and creeks during construction and would minimize the introduction of fuel, petroleum products, or other deleterious material from entering into the waterway. Such measures could include use of erosion control fences; storing equipment, solid waste, and petroleum products above the ordinary high water mark and away from areas prone to runoff; and requiring that all equipment be clean and free of leaks. To prevent fill from reaching water sources by wind or runoff, fill would be covered, stabilized or mulched, and silt fences would be used as required. The NPDES permit will be obtained prior to project construction. All appropriate measures will be taken to minimize erosion and storm water discharges during and after construction.

The recommended plan will result in minor fill impacts to mitigable resources as defined in USACE Planning regulations and under Section 404 of the Clean Water Act. These impacts are associated with minor excavation of material within farmed wetland areas and scour holes. General Permit Number NWKGP-41 authorizes this action.

Alternative 2 – Repairs resulting from implementation of this alternative plan would result in minor, temporary, construction related adverse impacts to water quality similar to those describe above. As with the Recommended Alternative, these impacts would be avoided and/or minimized to the greatest extent possible by the implementation of Best Management Practices and measures required under the National Pollutant Discharge Elimination System permit.

In the "No Action" Alternative with the absence of the Federal action addressing levee improvements, a high water event could result in the release of a variety of industrial chemicals and substantially impact the natural and human environment within the project area. Avoiding repair actions could result in adverse impacts to water quality from increased levels of nutrient loading and wastes, including runoff of pollutants from industrial sources, petroleum products, and non-point sources of human and animal wastes.

Fish and wildlife
The recommended plan, Alternative 1, would result in minor, temporary adverse wildlife impacts related to noise and visual disturbance during construction. The impacts to fishery resources would be related to site runoff and increased turbidity, which could make feeding, breeding, and sheltering difficult for species not accustomed to these conditions.

Alternative 2 – Repairs resulting from implementation of the alternative plan would result in similar impacts as described above.

The "No Action" Alternative would have minimal effects on fish and wildlife resources. These impacts would arise from flooding within the now unprotected area. Wetland species may benefit as more frequent flooding could occur in the now unprotected areas. Wetlands would likely recharge since they are now hydrologically connected to the Missouri River. Other terrestrial organisms could be killed, be temporarily displaced or have their habitat degraded by flooding.

Threatened and Endangered Species
The recommended plan would have no adverse effects on any Federally-listed threatened or endangered species or their habitat. Pallid sturgeon (*Scaphirhynchus albus*) are found primarily in the Missouri River and Mississippi River. No work is proposed within the Missouri River. Indiana bat (*Myotis sodalist*) roost in trees that tend to be greater than 9 inches diameter breast height during the spring and summer, and hibernate in caves during the fall and winter. Levee work will be conducted during the winter months, and only cottonwood and willow saplings will be removed at the Brunswick site. No impacts to any state listed threatened or endangered species or their habitat were identified.

Alternative 2 – Repairs resulting from implementation of the alternative plan would have no adverse effects on any Federally-listed threatened or endangered species or their habitat for the same reasons as described above.

The "No Action" Alternative would have no adverse effects on any Federally-listed threatened or endangered species or their habitat. No impacts to any state listed threatened or endangered species or their habitat were identified.

Vegetation
The recommended plan, Alternative 1, would be constructed along the existing alignment with the borrow materials utilized from adjacent agricultural crop fields. Borrow material used to repair erosion at Station 0+00 to 1+30 will enlarge an existing 7.3 acre 1993/95 landward scour by an additional 10.9 acres. A small amount of woody fringe vegetation consisting of mainly cottonwoods and willows (<9" dbh) will be removed in this area, but affects will primarily be to agricultural land. To repair the levee breach at Station 246+00 to 249+00 borrow material will come from an approximately 16 acre area of riverward agricultural land within 1,000' of the existing levee using shallow excavations.

Alternative 2 – Repairs resulting from implementation of the alternative plan would result in similar impacts as those described above. The setback of the levee would remove approximately 6 acres of land from agricultural production and convert it to a grassed levee.

The "No Action" Alternative could result in increases to the floodplain and to floodplain vegetation if lands are abandoned from farming due to the high risk of flooding. Overtime, successional vegetative growth could result in large expanses of floodplain forest.

Wetlands

The recommended plan would have a minor impact to wetlands. Minor amounts of fill would be excavated from farmed wetlands outside the levees. In addition, two scour hole wetlands (one within the levee breach (1.09 acres) would be filled and one landside of the levee (7.28 acres)) would be expanded by approximately 10.9 acres for borrow material which is shared with levee repair action 60C. The 1.09 acre scour hole wetland to be filled in within the breach was formed during the May 2007 flood and does not yet exhibit wetland characteristics (hydrophitic vegetation, soils). Approximately one acre on the edge of the 7.28 acre existing scour hole would be impacted from the excavation. Impacts to wetlands would fall within the guidelines of General Permit Number NWKGP-41. Borrow sites will be the same sites used during the 1993 flood event, and have previously been cleared environmentally and culturally and will follow US Fish and Wildlife Service SOPs. There would be a net long-term benefit to wetlands from the expansion of the existing scour hole that will create more wetland habitat.

Alternatives 2 – A setback of the levee around the breach and resulting scour hole would result in fewer impacts to scour wetlands than Alternative 1, as the scour hole at the breach would not be filled in but left in place. An additional 4,666 acres of fill would be taken from the farmed wetlands riverward of the levee to build the levee setback. The remaining impacts to wetlands from the borrow removal would be similar to Alternative 1.

The "No Action" Alternative could result in benefits to wetlands located on the flood plain within the now unprotected areas as these areas would be subject to a high level risk of future flooding.

Geologic resources

The recommended plan will require borrow material to repair erosion areas. This material will consist of earthen material excavated from nearby agricultural land borrow sources (<35 acres).

Alternatives 2 – Repairs resulting from implementation of the alternative plans would result in similar impacts as those described above.

The "No Action" Alternative would have no effect on geologic resources.

Agricultural activity

The recommended plan, while restoring the level of flood risk management, would have an incremental adverse impact on agricultural production. This impact is related to the conversion of agricultural land (approximately 10.8 acres) to wetland habitat by the enlarging of the existing scour area. Additional borrow location (approximately 16 acres) would be temporarily unavailable for agricultural use during excavation but after construction the land could convert back to agricultural production. Total loss to agricultural production is less than 27 acres, however once completed the project would provide flood protection for over 3625 acres of agricultural land.

Alternative 2 – Repairs resulting from implementation of the alternative plan would have similar adverse impacts to those of Alternative 1, however an additional 6 acres of agricultural land

would be permanently taken out of production and would be used as an earthen grass covered levee and an additional 4,666 acres of fill would be excavated from agricultural land near the levee. The fill area would temporarily be taken out of production but once construction is complete the land would revert back to agricultural uses.

The "No Action" Alternative would adversely impact agricultural activity by exposing approximately 3,652 acres of agricultural lands to increased flooding. This loss of agricultural production would have related impacts such as lost income, lower tax base, and decreased land value.

Archeological and Historical Resources

The recommended plan would have no impact to sites listed on or eligible for inclusion on the National Register of Historic Places (NRHP). A background check of the NRHP and site location maps identified no previously recorded sites within or near the proposed project areas. In a letter to State Historic Preservation Officer (SHPO), the Corps recommended that the project would have no effect on historic properties and that the project should be allowed to proceed. SHPO concurred with this recommendation on November 26, 2007 (Appendix II). The project will be coordinated with appropriate federally recognized Native American tribes (Tribes). If in the unlikely event that archeological material is discovered during project construction, work in the area of discovery will cease, the discovery would be investigated by a qualified archeologist, and the find would be coordinated with SHPO and the Tribes.

Alternative 2 – Repairs resulting from implementation of the alternative plan would result in no effects to archaeological or historical resources.

The "No Action" Alternative would result in no effects to archaeological or historical resources.

Flood control

The recommended plan would restore an approximately seven-year level of flood protection to the existing Brunswick Districts levee system, which would equal the level that existed prior to the declared flood event of 6 May 2007. The area is located in the base floodplain and is subject to Executive Order 11988, "Floodplain Management". In addition, since the proposed levee repair would restore this levee to its original alignment and pre-flood grade and cross section, no increase in floodwater surface elevations would occur. As the recommended plan would not directly or indirectly support more development in the floodplain or encourage additional occupancy and/or modify of the base floodplain, the Corps has determined that the recommended plan complies with the intent of Executive Order 11988.

Alternative 2 – Repairs resulting from implementation of the alternative plan would result in similar protections as described above for the recommended plan.

The "No Action" Alternative would continue to expose all public and private infrastructure and agricultural croplands previously protected to a high level risk of future flooding.

Economics

Based on the Corps' economic analysis, the recommended plan is economically justified with a benefit to cost ratio of 3.4 with a net annual benefit of $132,300.

Based on the Corps' economic analysis, repairs resulting from implementation of Alternative 2 resulted in a lower benefit to cost ratio of 2.8 with a net annual benefit of $121,300. The increased cost and decreased cost/benefit ratio is due to an increase in the amount of fill needed to construct the levee setback.

The "No Action" Alternative has a zero benefit to cost ratio and would continue to expose all public and private infrastructure and agricultural croplands previously protected by the levee to a high level risk of future flooding. People's livelihood and social well-being would remain in turmoil, subject to the continuous threat of flooding until the level of flood protection is restored. Failure to reconstruct the levee could adversely affect the tax base of the counties and municipal governments and special districts, such as school districts. In addition, loss of jobs and potential losses in agricultural production on lands protected by the levee would also be incurred.

Aesthetics

The recommended plan would result in very minor and temporary adverse aesthetic impacts associated with the construction activity. The human population that could potentially be affected by the activity would be expected to be very low, restricted to the occasional boater on the Missouri River or person(s) participating in outdoor recreation on the private land in the project area. Upon completion of the project, aesthetic impact of the project would be the same as the original levee.

Alternative 2 – Repairs resulting from implementation of the alternative plan would result in impacts similar to those described above.

The "No Action" Alternative would have no effect on esthetics.

Section 11: SUMMARY OF ENVIRONMENTAL EFFECTS OF THE NON-RECOMMENED PLANS

The Alternative Plan has not been recommended because, although it would have similar effects to the environment and flood control benefits as the Recommended Plan, Alternative 2 would result in greater impacts to agricultural land and lower economic benefits than the recommended plan. Alternative 2 would also require an additional 4,666 cubic yards of fill to construct the levee setback.

The "No Action" Alternative has not been recommended because it would not meet the project purpose and need of rehabilitating the damaged flood damage reduction project to its original condition and therefore restoring its associated social and economic benefits. The "No Action" Alternative would have no permanent or temporary construction related impacts. The "No Action" Alternative would continue to expose all public and private infrastructure and agricultural croplands previously protected by the levee prior to a high level risk of future flooding. People's livelihood and social well-being would remain in turmoil, subject to the continuous threat of flooding until the proposed level of flood protection is restored. Failure to reconstruct the levee could adversely affect the tax base of the county and municipal governments and special districts, such as school districts. In addition, loss of jobs and potential losses in agricultural production on lands protected by the levee would also be incurred.

Section 12: CUMULATIVE IMPACTS

The combined incremental effects of human activity are referred to as cumulative impacts (40CFR 1508.7). While these incremental effects may be insignificant on their own, accumulated over time and from various sources, they can result in serious degradation to the environment. The cumulative impact analysis must consider past, present, and reasonably foreseeable actions in the study area. The analysis also must include consideration of actions outside of the Corps, to include other State and Federal agencies. As required by NEPA, the Corps has prepared the following assessment of cumulative impacts related to the alternatives being considered in this EA.

Historically, the Missouri River and its floodplain has been altered by bank stabilization, dams on the river and its tributaries, roads/bridges, agricultural and urban levees, channelization, farming, water withdrawal for human and agricultural use, urbanization and other human uses. These activities have substantially altered the terrestrial and aquatic ecosystem within the Missouri River watershed.

Currently, the Corps is undertaking studies of the Federal levees along the Missouri River to determine if measures to improve the reliability of these existing flood risk management projects are warranted. In addition, the Corps, which administers Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act, has issued and will continue to evaluate permits authorizing the placement of fill material in the Waters of the United States and/or work on, in, over or under a navigable water of the United States including the Missouri River and its tributaries. These levee repair projects typically result in minor impacts to the aquatic ecosystem. The Corps, under the authority of the Public Law 84-99 Levee Rehabilitation and Inspection Program, has and will continue to provide rehabilitation assistance to Federal and non-Federal levee sponsors along the Missouri River which participate in the Public Law 84-99 Program. These projects typically result in minor short term construction related impacts to fish and wildlife and the habitats upon which they depend. Resources typically affected by this type of project generally include, but are not limited to, wetlands, flood plain values, water quality, and fish and wildlife habitat. It should be noted that these projects do not result in an addition to flood heights or reduced flood plain area but are merely a form of maintenance to that which had previously existed.

Of the reasonably foreseeable projects and associated impacts that would be expected to occur, further urbanization of the floodplain will probably have the greatest impact on these resources in the future. The possibility of wetland conversion and the clearing of riparian habitat is ever present, and these activities also tend to impact these resources. Construction of additional agricultural levees may occur provided land becomes available for this purpose; however, the trend seems to be moving in the opposite direction and towards urban development. The era of major reservoir construction has likely past, thus impacts from these projects likely will not occur.

The adverse effects associated with the proposed project are long-term/minor associated with the loss of agricultural cropland, and short term/minor associated with project construction. These minor adverse effects would be greatly offset by restoring the flood risk management capability and its associated social and economic benefits of the existing levee system. The PL84-99 Program is designed to merely bring the damaged levees back to pre-existing conditions (i.e., the

status quo). Thus, no significant cumulative impacts associated with the proposed rehabilitation of the existing levee system have been identified.

Section 13: MITIGATION MEASURES

The recommended plan will result in minor fill impacts to mitigatable resources as defined in USACE Planning regulations and under Section 404 of the Clean Water Act. These impacts are associated with minor excavation of borrow material around farmed wetland areas and scour holes. General Permit Number NWKGP-41 authorizes these actions.

A small fringe of trees, mostly cottonwood and willows (less than 9 inches diameter breast height) will be removed during borrow operations. The U.S. Fish and Wildlife has stated that natural plant succession should provide adequate revegetation to these areas provided no mast-producing trees are impacted. Therefore, no mitigation measures are warranted or proposed.

Section 14: COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES

Compliance with Designated Environmental Quality Statutes that have not been specifically addressed earlier in this report is covered in Table 1.

Section 15: CONCLUSION & RECOMMENDATION

The flood risk management level achieved by the recommended plan would be the same as the original pre-flood levees. The recommended plan would result in no impacts to any Federally-listed threatened or endangered species or their habitat. The recommended plan would result in no impacts to any properties listed, proposed for listing, eligible for listing, or potentially eligible for listing in the National Register of Historic Places. Areas of the existing levee sections damaged by flooding would be temporarily disturbed by the proposed construction activity. The adverse effects associated with the proposed project are long-term/minor associated with the loss of agricultural cropland (27 acres), and short term/minor associated with project construction. These minor adverse effects would be greatly offset by restoring the flood risk management capability and its associated social and economic benefits of the existing levee system. Alternative 1 – In-place repair meets the project purpose and need of rehabilitating the flood damage reduction capability and its associated social and economic benefits of the existing levee system. Of the three (3) alternatives considered, Alternative 1 –In-place repairs is recommended because it has the highest cost/benefit ratio, and is consistent with protection of the nation's environment.

Based on coordination with the resource agencies and input gained through a public interest review, as documented in this Environmental Assessment, the Kansas City District – Corps of Engineers has made a preliminary determination that this project would have no significant impacts on the human environment including natural and cultural resources and Federally-listed threatened and endangered species; therefore, a Finding of No Significant Impact (FONSI) has been prepared. This NEPA decision document will be forwarded to the District Engineer with a recommendation for approval.

Section 16: PREPARERS

This EA and the associated draft FONSI were prepared by Mr. Curtis R. Hoagland (Environmental Resource Specialist), with relevant sections prepared by Mr. Timothy Meade (Cultural Resources). The address of the preparers is: U.S. Army Corps of Engineers, Kansas City, District; PM-RP, Room 843, 601 E. 12th St, Kansas City, MO 64106.

Table 1
Compliance of Preferred Alternative with Environmental Protection Statutes and Other Environmental Requirements

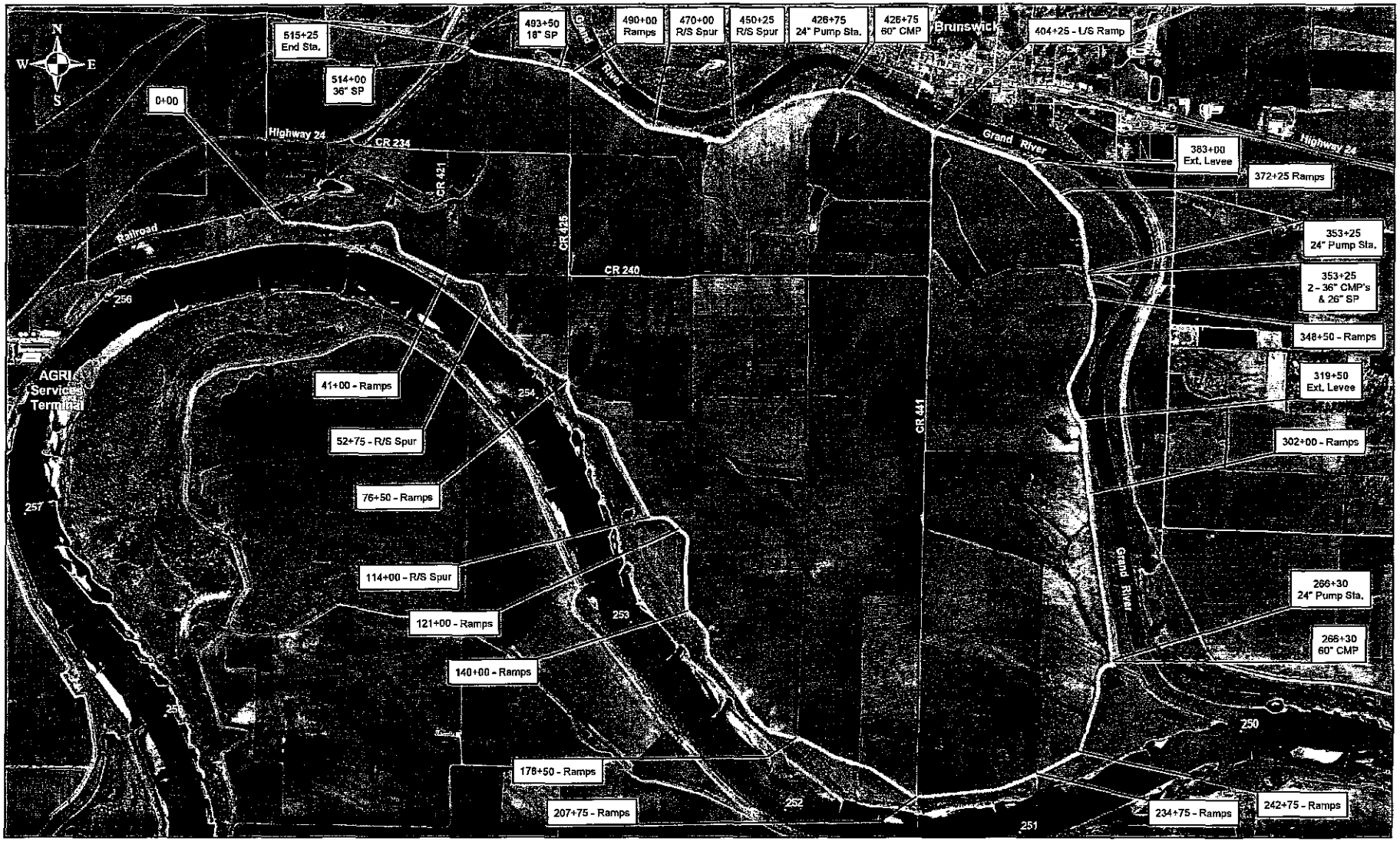
Federal Polices	Compliance
Archeological Resources Protection Act, 16 U.S.C. 470, et seq.	Full Compliance
Clean Air Act, as amended, 42 U.S. C. 7401-7671g, et seq.	Full Compliance
Clean Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.	Full Compliance
Coastal Zone Management Act, 16 U.S.C. 1451, et seq.	Not Applicable
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full Compliance
Estuary Protection Act, 16 U.S.C. 1221, et seq.	Not Applicable
Federal Water Project Recreation Act, 16 U.S.C. 4601-12, et seq.	Full Compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.	Full Compliance
Land and Water Conservation Fund Act, 16 U.S.C. 4601-4, et seq.	Not Applicable
Marine Protection Research and Sanctuary Act, 33 U.S.C. 1401, et seq.	Not Applicable
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full Compliance
National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470a, et seq.	Full Compliance
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full Compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Full Compliance
Wild and Scenic River Act, 16 U.S.C. 1271, et seq.	Not Applicable
Farmland Protection Policy Act, 7 U.S.C. 4201, et. seq.	Full Compliance
Protection & Enhancement of the Cultural Environment (Executive Order 11593)	Full Compliance
Floodplain Management (Executive Order 11988)	Full Compliance
Protection of Wetlands (Executive Order 11990)	Full Compliance
Environmental Justice (Executive Order 12898)	Full Compliance

NOTES:

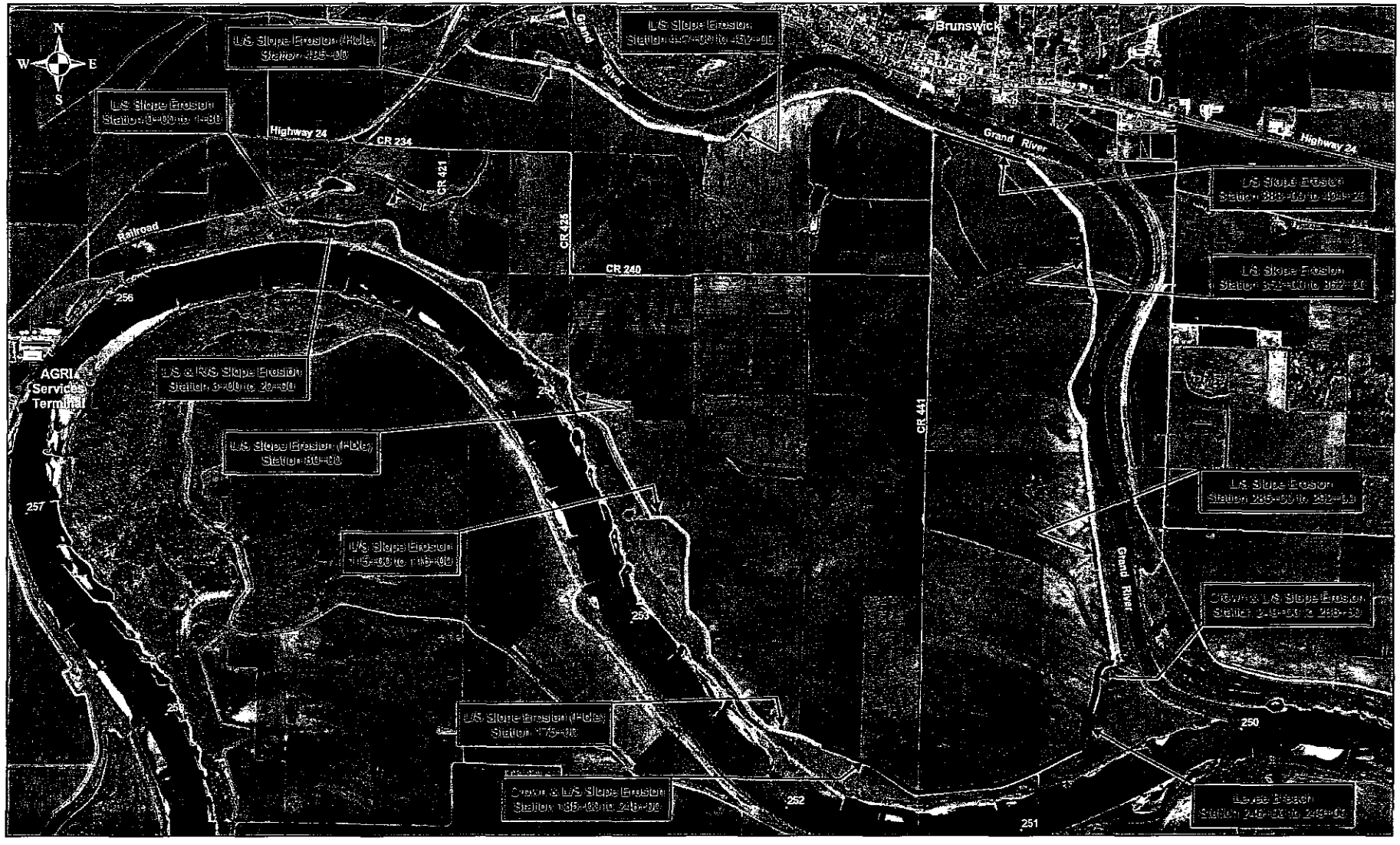
a. Full compliance. Having met all requirements of the statute for the current stage of planning (either preauthorization or postauthorization).
b. Partial compliance. Not having met some of the requirements that normally are met in the current stage of planning.
c. Noncompliance. Violation of a requirement of the statute.
d. Not applicable. No requirements for the statute required; compliance for the current stage of planning.

APPENDIX I – PROJECT MAPS

Brunswick Levee District (Item 60)
P.L. 84-99 Levee Rehabilitation Project
Carroll County, Missouri
December 2007



ATTACHMENT B - 1



ATTACHMENT D - 1

Brunswick Levee District
Borrow Map 1 of 2
N
E
S
W
Item No. 60C Section 2
Breach & Landside
Slope Erosion Repair
Sta. 114+05 to 119+20
Railroad
Borrow Area 1
Item No. 60
Landside Slope Erosion Repair
Sta. 0+00 to 1+80
Item No. 60
Brunswick Levee District
Item No. 60C Section 2
DeWitt Drainage & Levee District

Brunswick Levee District

Borrow Map 2 of 2

APPENDIX II – NEPA REVIEW

Brunswick Levee District (Item 60),
P.L. 84-99 Levee Rehabilitation Project
Carroll County, Missouri
December 2007

STATE OF MISSOURI
Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

November 26, 2007

Timothy Meade
Corps of Engineers, Kansas City District
700 Federal Building
Kansas City, Missouri 64106-2896

Re: Emergency Repairs, Brunswick Levee District (COE) Chariton County, Missouri

Dear Mr. Meade:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

We have reviewed the information provided concerning emergency repairs to the Brunswick Levee District. Based on this review we concur with your recommendation that the projects are in areas of low potential or areas of previous disturbance and that there will be **no historic properties affected.** We have no objection to the initiation of project activities.

Please be advised that, should project plans change, information documenting the revisions should be submitted to this office for further review. In the event that cultural materials are encountered during project activities, all construction should be halted, and this office notified as soon as possible in order to determine the appropriate course of action.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862. Please be sure to include the SHPO Log Number **(004-CH-08)** on all future correspondence or inquiries relating to this project.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Mark A. Miles
Director and Deputy
State Historic Preservation Officer

MAM:jd